DOCUMENT RESUME

ED 276 404 IR 012 398

AUTHOR Carey, Regan; Gall, Meredith
TITLE Patterns of Microcomputer Use at Home and at School by Secondary School Students.
PUB DATE Apr 86
NOTE 8p.; Paper presented at the Annual Meeting of the American Educational Research Association (67th, San Francisco, CA, April 16-20, 1986).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Comparative Analysis; Computer Literacy; *Computer Uses in Education; Educational Assessment; Home Study; *Microcomputers; Recreation; Secondary Education; *Secondary School Students; Surveys; *Use Studies
IDENTIFIERS Computer Games; *Computer Users; Eugene Public Schools OR; *Home Computers

ABSTRACT

This study investigates whether the recommendations for increased emphasis on computer technology in education made by such organizations as the National Commission on Excellence in Education, the National Science Board, and the Office of the Assistant Secretary for Educational Research and Improvement are being heeded formally in the public school system and informally in the home. Data were acquired by a survey of a stratified random sample of 983 students in the four secondary schools of the Eugene, Oregon, school district. The questionnaire used solicited information in the following areas: (1) microcomputing activities engaged in at school and time spent on each activity; (2) microcomputing activities engaged in at home and time spent on each activity; and (3) the relationship between home and school use of microcomputers. Results indicate that over half of the students in the study used a microcomputer; that computers are being extensively used by secondary students both at home and at school; and that students using microcomputers in the home tend to involve themselves in a wider variety of computer-based activities than students at school. Moreover, the use of applications software at home indicates some transfer of the school's emphasis on the "computer as a tool" to computer use in the home. Statistical results are presented in three tables, and references are provided. (KM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED276404

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
[X] This document has been reproduced as received from the person or organization originating it.
[ ] Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Patterns of Microcomputer Use at Home and at School by Secondary School Students

REGAN CAREY: University of Nevada
MEREDITH GALL: University of Oregon

Paper presented at the annual meeting of the American Educational Research Association, San Francisco, April 1986.

Recent commissions studying the status of American schools have issued reports calling for increased emphasis on computer technology in education (National Commission on Excellence in Education, 1983; National Science Board, 1983; Office of the Assistant Secretary for Educational Research and Improvement, 1983). The present study was developed to investigate whether these recommendations are being heeded formally in the public school system, and informally in the home (Note 1).

Some studies, using very large samples, have reported general statistics on computer access at school. These statistics include student/computer ratios (e.g., Becker, 1983), which unfortunately ignore the possibility that computer use by students is irregular, with different patterns of use associated with each individual. In contrast, the small number of ethnographic studies on home computer use are rich in detail about individual patterns of use, but their samples are very small (e.g., Giacquinta, 1984; Ely, 1984). The present study was designed to provide information on computer use at a level of detail not present in the broad surveys, and on a much larger sample than is found in the ethnographic studies.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Regan Carey
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IR012398

The following research questions guided the study:

1. In what microcomputing activities do students engage at school and how much time is spent on each activity?
2. In what microcomputing activities do students engage at home and how much time is spent on each activity?
3. What is the relationship between home and school use of microcomputers?

A questionnaire soliciting this information was administered to a stratified random sample of 983 students in the four secondary schools of the Eugene, Oregon school district.

RESULTS

Table 1 shows that one-third of the students (328 of the 983 students) had used a microcomputer at school in the two months prior to the administration of the questionnaire. A total of 299 students (approximately one-third of the sample) had used a microcomputer at home.

The heaviest use at school was for BASIC programming and for word processing, but a wide variety of other computer-based activities were reported as well. The computer-using students tended to spend from two to three hours per week working with a computer at school. Students in the mid ranges of GPA (2.0-2.9) tended to be the most active computer users at school.

As at school, student use of the computer at home extended over a wide variety of applications. Use of the computer for entertainment predominated,

but BASIC programming and word processing also were reported as popular activities. A small group of students reported very heavy use of the computer for telecommunications. Overall, these students tended to spend between three and six hours per week using the computer at home. Younger students (ninth grade) tended to spend more time than older students using computers.

TABLE 1
Microcomputer-based Activities at Home and at School in a Typical Week

	Home (N=299)		School (N= 328)	
Activity	% of Users	Mean Time per user (minutes)	% of Users	Mean Time per user (minutes)
Programming:				
BASIC	63.5	59.1	47.6	71.1
Logo	17.4	34.5	22.9	40.3
Pascal	9.7	56.9	11.9	59.5
other language	19.1	72.2	13.1	55.0
Educational:				
drill-and-practice	40.1	30.1	32.6	40.2
simulations	37.1	47.1	20.7	37.8
music	25.8	35.3	11.9	47.9
Applications:				
word processing	57.9	71.1	51.2	61.1
filers or database	31.1	37.3	28.0	55.2
graphics	40.5	47.3	29.0	44.8
spreadsheet	16.7	39.7	16.8	41.9
telecommunications	15.4	86.7	8.5	58.9
Entertainment:				
video arcade games	65.6	71.9	34.5	46.8
adventure games	57.2	64.5	30.2	42.3
Other:	33.8	46.2	22.9	46.2

Note: percentages are calculated as $\frac{\text{no. of users in activity}}{\text{total no. of users}} \times 100$

Over half of the students who used a computer at school (53.7%) reported working on it for personal use. The next two highest areas of use were english (33.5%) and business education (30.8%). This finding is consistent with the high amount of word processing reported in Table 1.

In households having a microcomputer, male students most frequently (34.2%) reported being the major user. The next most frequent major user was the father (21.8%), followed by a brother (17.4%). The mother was the major user in 11.4 percent of the households, followed by the female student (7.0%), and a sister (4.7%). Only seven students reported that the computer system in their home remained totally unused by any family member.

Table 2 shows the relationship between students' status as a computer user at school and at home.

TABLE 2

Number of Students Using the Computer at Home and at School

		SCHOOL	
		Users	Non-users
HOME	Users	128 (13.0%)	171 (17.4%)
	Non-users	200 (20.3%)	484 (49.2%)

Total N = 983

The sample is almost evenly divided on user status: half of the students

made no use of the microcomputer, and the other half used it at home and/or at school. There is also a relationship between home and school use: 39 percent of the school users ($^{128}/_{328}$) were also home users, but only 26 percent of the school non-users ($^{171}/_{484}$) were home users. A Chi-square test of these data yields a value of 16.1, which is significant at the .001 level.

Table 3 reports correlations between uses of the computer at home and at school for the subgroup of home and school users (N=128).

TABLE 3
Significant Correlations (p<=.001) Between
Computer Activities at Home and Computer Activities at School (N=128)

Computer based activities at School

Computer based activities at Home	PB	PL	PP	PO	DP	SI	MU	WP	DB	SS	GR	BB	VA	AG	NL
PB	.32					.37	.34				.38				.27
PL		.57				.55		.28	.34			.30		.35	
PP			.49	.30											
PO			.46	.27			.33			.32	.45				
DP		.39				.47			.27		.29	.30	.27	.29	.27
SI						.39					.31				
MU		.26				.32	.49				.55				
WP		.32													
DB		.34				.36			.40	.34	.29	.43	.30	.26	
SS						.29			.30	.44					
GR		.31				.32	.26				.55		.27	.30	
BB		.27	.37	.25		.29						.37		.32	
VA													.40	.30	
AG						.26							.45	.36	.27
NL		.28		.28			.27					.32			.33

Note. PB - programming: BASIC
PL - programming: Logo
PP - programming: Pascal
PO - programming: other
DP - drill-and-practice
VA - video arcade games
AG - adventure games
WP - word processing
SI - using simulations
GR - using art or graphic program
MU - using music software
DB - using a filer or database
SS - using a spreadsheet program
BB - accessing a Bulletin Board
NL - using software not listed

The correlation coefficients on the diagonal show a relationship between a particular use of the computer at home and the same use at school. With a few exceptions, the relationships are statistically significant and of moderate magnitude.

DISCUSSION

Computers are being extensively used by secondary students both at home and at school. Students using microcomputers in the home tend to involve themselves in a wider variety of computer-based activities than do students at school. The heavy use of applications software at home indicates some transfer of the school's emphasis on the "computer as a tool" to computer use in the home. Those students who spend a great deal of time playing computer games at home appear to avoid non-recreational use of the computer at school.

While over half of the students in this study used a microcomputer, the corollary is that almost half did not. This situation calls for further research to determine why many students are non-users, and whether interventions might be designed to help those that wish to become computer users.

The heavy use of school microcomputing facilities by students for personal use suggests a strong need for free, unscheduled access to computers at school. The use of such facilities for games undoubtedly will occur, but the results of the present study suggest that, apart from a small number of "hard core" gamers, students will use the computers as tools for their other studies.

The study was conducted in a single school district which is noted for community support of its schools. This characteristic of the district may limit the generalizability of the observed computer use patterns and relationships.

NOTE

1. The study reported here is part of a larger investigation reported in: Carey, R. Patterns of microcomputer use by secondary school students at home and school. Unpublished doctoral dissertation, University of Oregon, 1985.

REFERENCES

Becker, H. (1983). School uses of microcomputers: Reports from a national survey. Johns Hopkins University, Baltimore, MD: Center for Social Organization of Schools.

Ely, M. (1984, November). An evaluation of the PAL/Consortium Computer Center Summer Camp Equity Project (Technical Report No. 2). New York: New York University, Study of Interactive Technologies in Education.

Giacquinta, J., Ely, M., & Smith-Burke, T. (1984, September) Educational microcomputing at home: A comparative analysis of 20 families (Technical Report No. 1). New York: New York University, Study of Interactive Technologies in Education.

BEST COPY AVAILABLE